

REMARKS

Applicants respectfully thank the Examiner for speaking by telephone with undersigned.

I. The Claim Rejections under 35 U.S.C. 112.

Claim 16 has been amended to overcome the rejections.

II. Claim Rejections under 35 U.S.C. 103.

Claims 9, 11-17, and 19-34 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Muka et al., U.S. Patent No. 5,613,821 in view of Briner et al., U.S. Patent No. 5,810,537 and Mastroianni, U.S. Patent No. 6,068,668.

Independent claim 9 claims:

a movable stage positioned in the low cleanliness room for mounting a container in such a manner that the entire container remains in the low cleanliness room, and a cover to be removed from a main body of the container is positioned to face the high cleanliness room, the movable stage being horizontally movable relative to a wall that separates the low cleanliness room from the high cleanliness room;

an opening portion in the wall through which a dust free article is transported between an inside of the container and the high cleanliness room;
a door for opening and closing the opening portion;
a unifying means for unifying the cover of the container and the door in the low cleanliness room;

The USPTO respectfully argues that the mini-environment 58 in Muka discloses the claimed "low cleanliness room." See Fig. 21 of Muka for example with opening 78 claimed to be disposed within the "low cleanliness room" of mini environment 58 according to the Final Rejection at page 3.

However, applicants respectfully note that the "mini-environment" of Muka is a clean area. See cols. 3 lines 21-23, col. 5 lines 10-17, col. 6 lines 2-7, col 7, lines 29-32. Also, the use of a "mini-environment" is a well known term of art and concept in semiconductor manufacturing and indicates a clean area that is precisely controlled.

Applicants submit an article about what is meant by mini-environment in the art. Thus, the obviousness rejections are respectfully traversed as Muka does not disclose a low cleanliness area as the USPTO argues at least because:

1. The specification says the mini-environment is a clean area "isolated from the surrounding atmosphere" Col. 6, line 7.
2. The mini-environment must be clean so that the wafers are not contaminated.
3. A mini-environment is a known term of art in the art as shown by the article which means it is precisely controlled clean area.
4. Thus, the USPTO statement is not true that "even though the mini-environment may be somewhat cleaner the surrounding environment, it is still a low cleanliness room"

The remaining independent claims also claim similar limitations and the same arguments apply.

If the Examiner wants to suggest alternative claim language, applicants are also respectfully open to suggestions.

III. Additional points

As the Examiner admits, the interior of the carrier 32 is a high cleanliness room, and the interior of the load lock 22 is also a high cleanliness room in Muka.

The mini-environment in Muka is positioned between the carrier and the load rock 22. The mini-environment sealingly isolates the load rock chamber and the interior of the carrier from the surrounding atmosphere (Col 3, lines 21-23).

In addition it is disclosed that the cassette would be transferred with the wafers within the clean mini-environment existing between the carrier and wafer processing equipment (Col. 5, lines 10-17). Furthermore, there is disclosed that a suitable seal 74 is provided between the mini-environment 58 and the carrier when supported on the platform and encompasses the carrier port 38 and the aperture 72 in the mini-

environment for isolating the interior of the carrier, the interior the mini-environment and the load lock from the surrounding atmosphere (Col.6, lines 2-7).

As is clear from Col. 6, lines 66 through Col. 7 line 32, the wafers are moved from the interior of the carrier 32 to the interior of the load lock chamber 76 by the multilevel effector 84. More specifically, the wafers are transferred while being exposed within the mini-environment. If the mini-environment is a low cleanliness room as the USPTO respectfully argues, the wafers would be contaminated within the mini-environment. Thus, the USPTO's argument that the mini-environment is a low cleanliness room is respectfully incorrect.

Further, Col. 5, lines 10-17 of Muka teach that using this technique, ..., or the cassette would be transferred with the wafers within the clean mini-environment existing between the carrier, SMIF box, or the like, and the wafer processing equipment. Fig. 2 of Muka shows that the carrier door 42 and the load lock door 80 are positioned in the mini-environment 58. Therefore, the carrier door and the load lock door as described in Muka are positioned in a high cleanliness room.

The USPTO however, states on page 6 of the Office Action that even though the mini-environment may be somewhat cleaner than the surrounding environment, it is still a "low cleanliness room" when compared to the "high cleanliness" load lock. Applicants respectfully disagree with the Examiner.

As described in the specification, for example, page 2, lines 8-15 of the specification, the low cleanliness room is the room through which the container having is wafers is transported, such as an outdoor. Col. 3, lines 21-23 of Muka teach that an isolation housing or mini-environment sealingly isolates the load lock chamber and the interior of the carrier from the surrounding atmosphere. Therefore, the surrounding atmosphere is the room through which the container is transported, and considered as the low cleanliness room as recited in the claimed invention.

In contrast, the isolation housing or mini-environment can be considered as the high cleanliness room as recited in the claimed invention. Therefore, Muka also fails to teach or suggest the feature element "a unifying means for unifying the cover of the container and the door in the low cleanliness room", as recited in Claim 9.

The Examiner also states that Mastroianni shows a similar system by noting Fig. 4 of Mastroianni. Col. 3, lines 42-45 of Mastroianni teach that after the shuttle 28 has been fully retracted into the apparatus 20, the outer door 32 is closed and will not be allowed to open until after processing of the substrate 40 within carrier 38 is completed. Col. 3, lines 52-53 of Mastroianni teach that once closed, the doors 26 and 39 are coupled to each other by vacuum or other means. Col. 2, lines 63-67 of Mastroianni teach that the cleanliness of the apparatus and fab are maintained, such that the cleanliness inside the tool load port door of the semiconductor manufacturing apparatus is at least one hundred times cleaner than the fab environment. Therefore, the doors 26 and 39 are coupled to each other in the apparatus 20, that is, in the cleaner room. Accordingly, Mastroianni fails to teach or suggest the feature element “a unifying means for unifying the cover of the container and the door in the low cleanliness room”, as recited in Claim 9.

Briner does not teach or suggest the element “a unifying means for unifying the cover of the container and the door in the low cleanliness room”, as recited in Claim 9. Therefore, Muka in view of Briner and Mastroianni does not render Claim 9 obvious, because they fail to teach or suggest at least the element “a unifying means for unifying the cover of the container and the door in the low cleanliness room”, as recited in Claim 9.

Since they contain similar features, Claims 16, 24, 29, and 32 are patentable over Muka in view of Briner and Mastroianni for at least the reasons given for Claim 9. The remaining claims are also therefore allowable.

Claim 18 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Muka in view of Briner and Mastroianni, and further in view of Bonora et al., U.S. Patent No. 5,895,191 (hereinafter “Bonora”). Applicant respectfully traverses the rejections.

Bonora fails to teach or suggest at least the element “the cover is unified with the door of the movable stage in the low cleanliness room”, as recited in Claim 16, from which Claim 18 depends. Therefore, Muka in view of Briner and Mastroianni, and further in view of Bonora does not render Claim 16 obvious, because they fail to teach or

suggest all of the elements of Claim 16. Claim 18 is allowable due to its dependency on Claim 16.

Conclusion

In view of the foregoing, it is respectfully submitted that the instant application is in condition for allowance. Accordingly, it is respectfully requested that this application be allowed and a Notice of Allowance issued. If the Examiner believes that a telephone conference with Applicant's attorney would be advantageous to the disposition of this case, the Examiner is cordially requested to telephone the undersigned.

In the event the Commissioner of Patents and Trademarks deems additional fees to be due in connection with this application, Applicant's attorney hereby authorizes that such fee be charged to Deposit Account No. 06-1130.

Respectfully submitted,

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